

I CLAIM:

1. A manufactured preformed interbody spinal fusion implant for insertion at least in part across a surgically corrected height of a disc space between two adjacent vertebral bodies of a human spine, the vertebral bodies having an anterior aspect, a posterior aspect, and to each side a lateral aspect, said implant comprising:

a leading end for insertion into the disc space, an opposite trailing end having an exterior surface, and a mid-longitudinal axis passing through said leading and trailing ends;

opposed arcuate convex portions adapted for placement toward and into the adjacent vertebral bodies, said implant having a height between said opposed arcuate convex portions defining an implant height greater than the surgically corrected height of the disc space into which said implant is to be implanted, each of said opposed arcuate convex portions having at least one opening, said openings being in communication with one another to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant; and

opposed first and second side walls connecting said opposed arcuate convex portions, said trailing end having a segment with a first radius between the mid-longitudinal axis of said implant and said first side wall that is different from another segment of said trailing end having a second radius between the mid-longitudinal axis of said implant and said second side wall, said trailing end being at least in part curved in a direction from one of said side walls to the other of said side walls.

2. The implant of claim 1, wherein said implant has a maximum length and a minimum length, said minimum length being located along one of said opposed side walls.
3. The implant of claim 1, wherein said trailing end is adapted to conform from side to side to the peripheral contour of the vertebral bodies adjacent a disc space into which said implant is properly implanted.
4. The implant of claim 1, further comprising at least one protrusion extending from at least one of said opposed arcuate convex portions for engaging at least one of the adjacent vertebral bodies to maintain said implant within the disc space.
5. The implant of claim 4, wherein said protrusion comprises a thread for engaging each of the adjacent vertebral bodies.
6. The implant of claim 4, wherein said protrusion comprises a ridge.
7. The implant of claim 1, further comprising a plurality of surface roughenings for engaging the adjacent vertebral bodies and for maintaining said implant in place, said surface roughenings being present on at least a portion of said opposed arcuate convex portions.
8. The implant of claim 1, wherein each of said opposed arcuate convex portions comprises an interior surface, said interior surfaces being spaced apart to define a hollow interior in communication with said openings.
9. The implant of claim 1, wherein said opposed arcuate convex portions have a porous surface.
10. The implant of claim 1, wherein said implant is formed of a material other than bone.

11. The implant of claim 10, wherein said implant material is selected from the group including surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, any plastic or composite material suitable for the intended purpose.

12. The implant of claim 1, wherein at least a portion of said leading end is tapered for facilitating insertion of the implant between the two adjacent vertebral bodies.

13. The implant of claim 1, wherein said opposed arcuate portions are in a diverging relationship at least in part to each other for allowing angulation of the adjacent vertebral bodies relative to each other.

14. The implant of claim 1, wherein said opposed arcuate portions are generally in a converging relationship from the trailing end to the leading end to each other for allowing angulation of the adjacent vertebral bodies relative to each other.

15. The implant of claim 1, wherein said implant is configured to require an element of rotation for proper insertion.

16. The implant of claim 1, wherein at least a portion of said implant is bioresorbable.

17. The implant of claim 1, in combination with an osteogenic material.

18. The implant of claim 17, wherein said osteogenic material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

19. The implant of claim 1, in combination with an instrument for inserting said implant at least in part into the disc space.

20. A method of inserting an artificial implant into a disc space between two adjacent vertebral bodies, the method comprising the steps of:

providing an implant having a generally non-linear trailing end being configured to generally conform to at least a portion of the natural anatomical curvature of at least one of the anterior and lateral aspects of the vertebral bodies;

forming an opening across the disc space and into a portion of each of the adjacent vertebral bodies;

inserting the implant into the opening; and

aligning the trailing end of the implant with the anatomical curvature of the adjacent vertebral bodies so that the trailing end of the implant does not substantially protrude from the spine.

21. The method of claim 20, further comprising the step of attaching a driver instrument to the implant to insert the implant into the opening formed during the step of forming.

22. The method of claim 20, wherein the implant is a fusion implant having a hollow therein, further comprising the step of loading the implant with a fusion promoting material prior to the step of inserting.

23. The method of claim 22, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

24. The method of claim 20, further comprising the step of combining the implant with a fusion promoting material.

25. The method of claim 24, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

26. The method of claim 20, wherein the step of forming includes the sub-step of drilling the opening.

27. The method of claim 20, wherein the step of inserting includes linearly inserting the implant into the opening.

28. The method of claim 20, wherein the step of providing includes providing a non-cylindrical implant.

29. A method of inserting an artificial implant into a disc space between two adjacent vertebral bodies, the method comprising the steps of:

providing an artificial implant having an upper surface and a lower surface, the upper and lower surfaces being at least arcuate in part and adapted to contact an adjacent vertebral body, the implant having a generally non-linear trailing end being configured to generally conform to at least a portion of the natural anatomical curvature of at least one of the anterior and lateral aspects of the vertebral bodies;

forming an opening across the disc space and into a portion of each of the adjacent vertebral bodies;

inserting the implant into the opening; and

aligning the trailing end of the implant with the anatomical curvature of the adjacent vertebral bodies so that the trailing end of the implant does not substantially protrude from the spine.

30. The method of claim 29, further comprising the step of attaching a driver instrument to the implant to insert the implant into the opening formed during the step of forming.

31. The method of claim 29, wherein the implant is a fusion implant having a hollow therein, further comprising the step of loading the implant with a fusion promoting material prior to the step of inserting.

32. The method of claim 31, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

33. The method of claim 29, further comprising the step of combining the implant with a fusion promoting material.

34. The method of claim 33, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

35. The method of claim 29, wherein the step of forming includes the sub-step of drilling the opening.

36. The method of claim 29, wherein the step of inserting includes linearly inserting the implant into the opening.

37. The method of claim 29, wherein the step of inserting includes rotating the implant into the opening.

38. The method of claim 29, wherein the step of inserting includes screwing the implant into the opening.

39. A method of inserting a pair of artificial implants into a disc space between two adjacent vertebral bodies, the method comprising the steps of:

providing a first artificial implant having a width less than one half the width of the disc space and a generally non-linear trailing end being configured to generally conform

to at least a portion of the natural anatomical curvature of at least one of the anterior and lateral aspects of the vertebral bodies;

providing a second artificial implant having a width less than one half the width of the disc space and a generally non-linear trailing end being configured to generally conform to at least a portion of the natural anatomical curvature of at least one of the anterior and lateral aspects of the vertebral bodies;

forming at least one opening across the disc space and into a portion of each of the adjacent vertebral bodies;

inserting the first implant into the at least one opening;

inserting the second implant into the at least one opening; and

aligning the trailing end of each implant with the anatomical curvature of the adjacent vertebral bodies so that the trailing end of each implant does not substantially protrude from the spine.

40. The method of claim 39, wherein at least one of said providing steps includes providing an implant with an asymmetrical trailing end.

41. The method of claim 39, wherein each of said providing steps includes providing an implant with a symmetrical trailing end.

42. The method of claim 39, wherein each implant is a fusion implant having a hollow therein, further comprising the step of loading each implant with fusion promoting material prior to the steps of inserting.

43. The method of claim 42, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

44. The method of claim 39, further comprising the step of combining at least one of the implants with a fusion promoting material.

45. The method of claim 44, wherein the fusion promoting material includes at least one of bone, coral, bone morphogenetic protein, and genes coding for the production of bone.

46. The method of claim 39, wherein the step of forming includes the sub-step of drilling the at least one opening.

47. The method of claim 39, wherein each of the steps of inserting includes linearly inserting the implant into the at least one opening.

48. The method of claim 39, wherein each of the steps of inserting includes rotating the implant into the at least one opening.

49. The method of claim 39, wherein each of the steps of inserting includes screwing the implant into the at least one opening.